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~~1653~~ 1656INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

U.S. PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
kec	1	5,789,538	8/4/1998	Edward J. Rebar; Carl O. Pablo			
	2	5,639,592	6/17/1997				
	3	5,597,693	1/28/1997	Evans, et al.			
	4	5,403,484	4/4/1995	Ladner, et al.			
	5	5,376,530	12/27/1994	De The, et al.			
	6	5,350,840	9/27/1994	Call, et al.			
	7	5,340,739	8/23/1994	Stevens, et al.			
	8	5,324,818	6/28/1994	Nabel, et al.			
	9	5,324,638	6/28/1994	Tao, et al.			
	10	5,243,041	9/7/1993	Fernandez-Pol			
	11	5,096,815	3/13/1992	Ladner, et al.			
kec	12	4,990,607	2/5/1991	Katagiri, et al.			

FOREIGN PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

kec	13	Celenza, et al., "A Yeast Gene That is Essential for Release from Glucose Repression Encodes a Protein Kinase", <u>Science</u> 233: 1175-1180 (1986)
	14	Singh, et al., "Molecular Cloning of an Enhancer Binding Protein: Isolation by Screening of an Expression Library with a Recognition Site DNA", <u>Cell</u> 52: 415-423 (1988)
	15	Kinzler, et al., "The <i>GLI</i> Gene is a Member of the <i>Kruppel</i> Family of Zinc Finger Proteins", <u>Nature</u> 332: 371-374 (1988)
	16	Debs, et al., "Regulation of Gene Expression <i>in Vivo</i> by Liposome-Mediated Delivery of a Purified Transcription Factor", <u>J. Biol. Chem.</u> 265: 10189-10192 (1990)
	17	Kudla, et al., "The Regulatory Gene <i>ureA</i> Mediating Nitrogen Metabolite Repression in <i>Aspergillus nidulans</i> . Mutations Affecting Specificity of Gene Activation Alter a Loop Residue of a Putative Zinc Finger", <u>EMBO J.</u> 9: 1355-1364 (1990)
	18	Wright, et al., "Expression of a Zinc Finger Gene in HTLV-I- and HTLV-II-Transformed Cells", <u>Science</u> 248: 588-591 (1990)
	19	Bergquist, et al., "Loss of DNA-Binding and New Transcriptional <i>trans</i> -activation Function in Polyomavirus Large T-antigen with Mutation of Zinc Finger Motif", <u>Nucleic Acids Res.</u> 18: 2715-2720 (1990).
	20	South, et al., "The Nucleocapsid Protein Isolated from HIV-1 Particles Binds Zinc and Forms Retroviral-Type Zinc Fingers", <u>Biochemistry</u> 29: 7786-7789 (1990)
kec		

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DATE CONSIDERED

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EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to Applicant.

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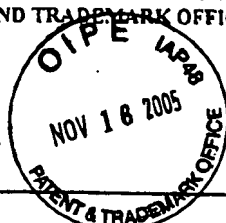
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INFORMATION DISCLOSURE
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U.S. PATENT DOCUMENTS

EXAM. INITIALS	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE

FOREIGN PATENT DOCUMENTS

EXAM. INITIALS	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

21	Rauscher, III, et al., "Binding of the Wilms' Tumor Locus Zinc Finger Protein to the EGR-1 Consensus Sequence", <u>Science</u> 250: 1259-1262 (1990)
22	Nardelli, et al., "Base Sequence Discrimination by Zinc-Finger DNA-Binding Domains", <u>Nature</u> 349: 175-178 (1991)
23	Theisen, et al., "Amino Acid Substitutions in the SPI Zinc Finger Domain Alter the DNA Binding Affinity to Cognate SPI Target Site", <u>Biochem. Biophys. Res. Commun.</u> 175: 333-338 (1991)
24	Pavletich, et al., "Zinc Finger-DNA Recognition: Crystal Structure of a Zif268-DNA Complex at 2.1 Å", <u>Science</u> 252: 809-817 (1991)
25	DiBello, et al., "The Drosophila Broad-Complex Encodes a Family of Related Proteins Containing Zinc Fingers", <u>Genetics</u> 129: 385-397 (1991)
26	Ray, et al., "Repressor to Activator Switch by Mutations in the First Zn Finger of the Glucocorticoid Receptor: Is Direct DNA Binding Necessary?", <u>Proc. Natl. Acad. Sci. USA</u> 88: 7086-7090 (1991)
27	Agarwal, et al., "Stimulation of Transcript Elongation Requires both the Zinc Finger and RNA Polymerase II Binding Domains of Human TFIIS", <u>Biochemistry</u> 30: 7842-7851 (1991)
28	Antao, et al., "A Thermodynamic Study of Unusually Stable RNA and DNA Hairpins", <u>Nucleic Acids Res.</u> 19: 5901-5905 (1991)
29	Webster, et al., "Conversion of the E1A Cys ₄ Zinc Finger to a Nonfunctional His ₂ Cys ₂ Zinc Finger by a Single Point Mutation", <u>Proc. Natl. Acad. Sci. USA</u> 88: 9989-9993 (1991)
30	Wilson, et al., "In Vivo Mutational Analysis of the NGFI-A Zinc Fingers", <u>J. Biol. Chem.</u> 267: 3718-3724 (1992)
31	Thukral, et al., "Mutations in the Zinc Fingers of ADR1 that Change the Specificity of DNA Binding and Transactivation", <u>Mol. Cell. Biol.</u> 12: 2784-2792 (1992)
32	Quigley, et al., "Complete Androgen Insensitivity Due to Deletion of Exon C of the Androgen Receptor Gene Highlights the Functional Importance of the Second Zinc Finger of the Androgen Receptor <i>in Vivo</i> ", <u>Mol. Endocrinol.</u> 6: 1103-1112 (1992)
33	Barbas III, et al., "Semisynthetic Combinatorial Antibody Libraries: A Chemical Solution to the Diversity Problem", <u>Proc. Natl. Acad. Sci. USA</u> 89: 4457-4461 (1992)
34	Hirst, et al., "Discrimination of DNA Response Elements for Thyroid Hormone and Estrogen is Dependent on Dimerization of Receptor DNA Binding Domains", <u>Proc. Natl. Acad. Sci. USA</u> 89: 5527-5531 (1992)
35	Desjarlais, et al., "Redesigning the DNA-Binding Specificity of a Zinc Finger Protein: A Data Base-Guided Approach", <u>PROTEINS: Structure, Function, and Genetics</u> 12: 101-104 (1992)
36	Nardelli, et al., "Zinc Finger-DNA Recognition: Analysis of Base Specificity by Site-Directed Mutagenesis", <u>Nucleic Acids Res.</u> 20: 4137-4144 (1992)
37	Crozatier, et al., "Single Amino Acid Exchanges in Separate Domains of the Drosophila Serendipity δ Zinc Finger Protein Cause Embryonic and Sex Biased Lethality", <u>Genetics</u> 131: 905-916 (1992)
38	Qian, et al., "Two-Dimensional NMR Studies of the Zinc Finger Motif: Solution Structures and Dynamics of Mutant ZFY Domains Containing Aromatic Substitutions in the Hydrophobic Core", <u>Biochemistry</u> 31: 7463-7476 (1992)

McCabe 6-4-2007

09/807665

39	Desjarlais, et al., "Toward Rules Relating Zinc Finger Protein Sequences and DNA Binding Site Preferences", <u>Proc. Natl. Acad. Sci. USA</u> 89: 7345-7349 (1992)
40	Hayes, et al., "Locations of Contacts between Individual Zinc Fingers of <i>Xenopus laevis</i> Transcription Factor IIIA and the Internal Control Region of a 5S RNA Gene", <u>Biochemistry</u> 31: 11600-11605 (1992)
41	Jacobs, "Determination of the Base Recognition Positions of Zinc Fingers from Sequence Analysis", <u>EMBO J.</u> 11: 4507-4517 (1992)
42	Pabo, et al., "Transcription Factors: Structural Families and Principles of DNA Recognition", <u>Annu. Rev. Biochem.</u> 61: 1053-1095 (1992)
43	Salch, et al., "A Novel Zinc Finger Gene on Human Chromosome 1 qter that is Alternatively Spliced in Human Tissues and Cell Lines", <u>Am. J. Hum. Genet.</u> 52: 192-203 (1993)
44	Hoffman, et al., "Structures of DNA-Binding Mutant Zinc Finger Domains: Implications for DNA Binding", <u>Protein Sci.</u> 2: 951-965 (1993)
45	Bellefroid, et al., "Clustered Organization of Homologous KRAB Zinc-Finger Genes with enhanced Expression in Human T Lymphoid Cells", <u>EMBO J.</u> 12: 1363-1374 (1993)
46	Yu, et al., "A Hairpin Ribozyme Inhibits Expression of Diverse Strains of Human Immunodeficiency Virus Type 1", <u>Proc. Natl. Acad. Sci. USA</u> 90: 6340-6344 (1993)
47	Rollins, et al., "Role of TFIIIA Zinc Fingers in Vivo: Analysis of Single-Finger Function in Developing <i>Xenopus</i> Embryos", <u>Mol. Cell. Biol.</u> 13: 4776-4783 (1993)
48	Julian, et al., "Replacement of His ²³ by Cys in a Zinc Finger of HIV-1 NC ₇ Led to a Change in ¹ H NMR-Derived 3D Structure and to a Loss of Biological Activity", <u>FEBS</u> 331: 43-48 (1993)
49	Pavletich, et al., "Crystal Structure of a Five-Finger GLI-DNA Complex: New Perspectives on Zinc Fingers", <u>Science</u> 261: 1701-1707 (1993)
50	Fairall, et al., "The Crystal Structure of a Two Zinc-Finger Peptide Reveals an Extension to the Rules for Zinc-Finger/DNA Recognition", <u>Nature</u> 366: 483-487 (1993)
51	Rebar, et al., "Zinc Finger Phage: Affinity Selection of Fingers with New DNA-Binding Specificities", <u>Science</u> 263: 671-673 (1994)
52	Jamieson, et al., "In Vitro Selection of Zinc Fingers with Altered DNA-Binding Specificity", <u>Biochemistry</u> 33: 5689-5695 (1994)
53	Choo, et al., "Toward a Code for the Interactions of Zinc Fingers with DNA: Selection of Randomized Fingers Displayed on Phage", <u>Proc. Natl. Acad. Sci. USA</u> 91: 11163-11167 (1994)
54	Wu, et al., "Building Zinc Fingers by Selection: Toward a Therapeutic Application", <u>Proc. Natl. Acad. Sci. USA</u> 92: 344-348 (1995)
55	Taylor, et al., "Designing Zinc-Finger ADR1 Mutants with Altered Specificity of DNA Binding to T in UAS1 Sequences", <u>Biochemistry</u> 34: 3222-3230 (1995)
56	Elrod-Erickson, et al., "Zif268 Protein-DNA Complex Refined at 1.6 Å: A Model System for Understanding Zinc Finger-DNA Interactions", <u>Structure</u> 4: 1171-1180 (1996)
57	Jamieson, et al., "A Zinc Finger Directory for High-Affinity DNA Recognition", <u>Proc. Natl. Acad. Sci. USA</u> 93: 12834-12839 (1996)
58	Houbavity, et al., "Cocrystal Structure of YY1 Bound to the Adeno-Associated Virus P5 Initiator", <u>Proc. Natl. Acad. Sci. USA</u> 93: 13577-13582 (1996)
59	Kim, et al., "A 2.2 Å Resolution Crystal Structure of a Designed Zinc Finger Protein Bound to DNA", <u>Nature Structural Biology</u> 3: 940-945 (1996)
60	Greisman, et al., "A General Strategy for Selecting High-Affinity Zinc Finger Proteins for Diverse DNA Target Sites", <u>Science</u> 275: 657-661 (1997)
61	Narayan, et al., "Structures of Zinc Finger Domains from Transcription Factor Sp1", <u>J. Biol. Chem.</u> 272: 7801-7809 (1997)
62	Liu, et al., "Design of Polydactyl Zinc-Finger Proteins for Unique Addressing within Complex Genomes", <u>Proc. Natl. Acad. Sci. USA</u> 94: 5525-5530 (1997)
63	Isalan, et al., "Synergy Between Adjacent Zinc Fingers in Sequence-Specific DNA Recognition", <u>Proc. Natl. Acad. Sci. USA</u> 94: 5617-5621 (1997)
64	Wuttke, et al., "Solution Structure of the First Three Zinc Fingers of TFIIIA Bound to the Cognate DNA Sequence: Determinants of Affinity and Sequence Specificity", <u>J. Mol. Biol.</u> 273: 183-206 (1997)
65	Elrod-Erickson, et al., "High Resolution Structures of Variant Zif268-DNA Complexes: Implications for Understanding Zinc Finger-DNA Recognition", <u>Structure</u> 6: 451-464 (1998)
66	Nolte, et al., "Differing Roles for Zinc Fingers in DNA Recognition: Structure of a Six-Finger Transcription Factor IIIA Complex", <u>Proc. Natl. Acad. Sci. USA</u> 95: 2938-2943 (1998)

McCarter 6-4-2007

09/807665

KCC	67	Isalan, et al., "Comprehensive DNA Recognition through Concerted Interactions from Adjacent Acid Fingers", <u>Biochemistry</u> 37: 12026-12033 (1998)
EXAMINER <i>J. Carls</i>		DATE CONSIDERED <i>6-4-2007</i>

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INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

U.S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

EXAM. INITIALS	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO
KCC	WO 96/06166	2/29/1996	PCT			

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

KCC	2	Gebelein, et al., "A Novel Profile of Expressed Sequence Tags for Zinc Finger Encoding Genes from the Poorly Differentiated Exocrine Pancreatic Cell Line AR4IP", <u>Cancer Letters</u> 105: 225-231 (1996)
KCC	3	Liu, et al., "Design of Polydomain Zinc Finger Proteins for Unique Addressing within Complex Genomes", <u>Proc. Natl. Acad. Sci. USA</u> 96: 5535-5536 (1999)
KCC	4	Ogawa, et al., "Enhanced Expression in Seminoma of Human Zinc Finger Genes Located on Chromosome 19", <u>Cancer Genet. Cytogenet.</u> 100: 36-42 (1998)

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DATE CONSIDERED

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U.S. PATENT DOCUMENTS

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	5,789,538	8/4/1998	Edward J. Rebar; Carl O. Pablo			
	5,223,409	6/1993	Ladner, et al.			
	5,096,815	3/1992	Ladner, et al.			

FOREIGN PATENT DOCUMENTS

EX INITIALS	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

rec	4	Miller, et al., "Repetitive Zinc-Binding Domains in the Protein Transcription Factor IIIA from <i>Xenopus</i> Oocytes". <u>EMBO J. 4: 1609-1614 (1985)</u>
rec	5	Sadowski, et al., "GAL4-VPI6 is an Unusually Potent Transcriptional Activator". <u>Nature 335: 563-564 (1988)</u>
rec	6	Lee, et al., "Three-Dimensional Solution Structure of a Single Zinc Finger DNA-Binding Domain". <u>Science 245: 635-637 (1989)</u>
	7	Pavletich, et al., "Zinc Finger-DNA Recognition: Crystal Structure of a Zif268-DNA Complex at 2.1 Å". <u>Science 252: 809-817 (1991)</u>
rec	8	Barbas, et al., "Assembly of Combinatorial Antibody Libraries on Phage Surfaces: The Gene III Site". <u>Proc. Natl. Acad. Sci. USA 88: 7978-7982 (1991)</u>
	9	Pavletich, et al., "Crystal Structure of a Five-Finger GLI-DNA Complex: New Perspectives on Zinc Fingers". <u>Science 261: 1701-1707 (1993)</u>
	10	Rebar, et al., "Zinc Finger Phage: Affinity Selection of Fingers with New DNA Binding Specificities". <u>Science 263: 671-673 (1994)</u>
	11	Wu, et al., "Building Zinc Fingers by Selection: Toward a Therapeutic Application". <u>Proc. Natl. Acad. Sci. USA 92: 344-348 (1995)</u>
	12	Elied-Erickson, et al., "Zif268 Protein-DNA Complex Refined at 1.6 Å: A Model System for Understanding Zinc Finger-DNA Interactions". <u>Structure 4: 1171-1180 (1996)</u>
	13	Kim, et al., "A 3.2 Å Resolution Crystal Structure of a Designed Zinc Finger Protein Bound to DNA". <u>Nature Structural Biology 3: 940-945 (1996)</u>
	14	Groisman, et al., "A General Strategy for Selecting High-Affinity Zinc Finger Proteins for Diverse DNA Target Sites". <u>Science 273: 637-661 (1997)</u>

EXAMINER

DATE CONSIDERED

H.C. Carter

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EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

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U.S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

EXAM. INITIALS	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

15	Design of TATA Box-Binding Protein/Zinc Finger Fusions for Targeted Regulation of Gene Expression", <u>Proc. Natl. Acad. Sci. USA</u> 94: 3616-3620 (1997)
16	Liu, et al., "Design of Polydactyl Zinc-Finger Proteins for Unique Addressing within Complex Genomes", <u>Proc. Natl. Acad. Sci. USA</u> 94: 3323-3330 (1997)
17	Rader, et al., "Phage Display of Combinatorial Antibody Libraries", <u>Curr. Opin. Biotechnology</u> 8: 503-508 (1997)
18	Kim, et al., "Transcriptional Repression by Zinc Finger Peptides", <u>J. Biol. Chem.</u> 272: 29795-29800 (1997)
19	Elrod-Erickson, et al., "High-Resolution Structures of Variant Zif268-DNA Complexes: Implications for Understanding Zinc Finger-DNA Recognition", <u>Structure</u> 6: 451-464 (1998)
20	Beerli, et al., "Toward Controlling Gene Expression at Will: Specific Regulation of the <i>erbB-2/HER-2</i> Promoter by Using Polydactyl Zinc Finger Proteins Constructed from Modular Building Blocks", <u>Proc. Natl. Acad. Sci. USA</u> 95: 14628-14633 (1998)
21	Segal, et al., "Toward Controlling Gene Expression at Will: Selection and Design of Zinc Finger Domains Recognizing Each of the 5'-GNN-3' DNA Target Sequences", <u>Proc. Natl. Acad. Sci. USA</u> 96: 2758-2763 (1999)

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DATE CONSIDERED

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EXAMINER Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to Applicant.

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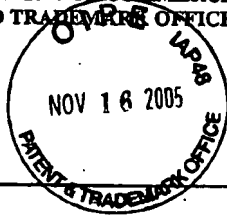
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U.S. PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
YCC	1	US 2002/0081614 A1	06/27/2002	Case CC, Zhang L			

FOREIGN PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

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